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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,643	03/30/2001	Blaise B. Fanning	42390P10572	7641

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EXAMINER

PORTKA, GARY J

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/822,643

Applicant(s)

FANNING, BLAISE B.

Examiner

Gary J Portka

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 7, 2003 has been entered.
2. Claims 1, 14, and 27 have been amended by Applicant. Claims 1-32 are pending.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites "a chipset cache located in a chipset internally to the processor", which is contradictory because "chipset" implies not internal to a processor, and further contradicts the language "the chipset being a memory controller external and coupled to the processor". If "internally to the processor" refers to the "chipset cache controller" then the claim should be amended to clarify this. Claim 14 recites "chipset internally to the processor", and claim 27 recites "control the chipset cache internally to the processor". In each case the claim may be construed as

meaning the chipset is internal to the processor, which is contradictory. All other claims depend from these and are rejected for the same reasons.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 14-15, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al., U.S. Patent 6,237,064 B1, in view of Cho, U.S. Patent 6,629,218 B2.

7. As to claims 1-2, 14-15, and 27-28, Kumar discloses the recited apparatus, method, and system including processor with cache unit (L1) and internal controller for external chipset cache (L2) with tag store and coherency controller, see Abstract, Figure 1, column 3 lines 9-30 and column 3 line 63 to column 4 line 13, and column 4 line 66 to column 5 line 6. Kumar does not disclose that the L2 cache is part of a memory controller. However, it was known that such an L2 cache could be placed either separately (on a back side bus as depicted in Kumar), or on the same bus with the memory controller (see Cho, Fig. 1). Cho further notes that for specific preferences any configuration or combination of integrated circuits may be implemented (see col. 5 lines 38-46), and therefore it is clear that the L2 cache 14 may be integrated with the memory controller 16 if desired. This would achieve any number of recognized advantages such

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as reduced cost by using available parts, or by reducing the number of separate parts needed. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to include the L2 cache in a memory controller, because it was known that an L2 cache could advantageously be implemented adjacent to a memory controller in such a system, and integration of such parts was well known and was taught by Cho.

8. Claims 3-13, 16-26, and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al., U.S. Patent 6,237,064 B1, in view of Cho, U.S. Patent 6,629,218 B2, and further in view of Gilda, U.S. Patent 6,438,657 B1.

9. As to claims 3, 16, and 29, neither Kumar nor Cho disclose the coherency protocol is MESI. However, this was a well known and common coherency protocol known at the time, and was known to be specifically beneficial to a system having on-chip L1 and on-chip controller for L2, as taught by Gilda (see Figure 1, and column 11 line 52 to column 12 line 24); therefore an artisan would have been motivated to use MESI in Kumar. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use a MESI protocol, because it was a well known coherency protocol and was previously taught in analogous devices.

10. As to claims 4-13, 17-26, and 30-32, the recited signals, indicators, and resulting operations are disclosed or inherent to the operation of Kumar, or as taught in Gilda are indigenous to the coherency operations involving multi-level caches, and as such would have been obvious to provide in Kumar as a function of providing the MESI protocol as described above.

Response to Arguments

11. Applicant's arguments filed August 7, 2003 have been fully considered but they are moot in view of the new grounds of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No:

6,487,639 B1 Separate L2 cache with controller on processor (col. 5).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J Portka whose telephone number is (703) 305-4033. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Gary J Portka
Primary Examiner
Art Unit 2188

November 3, 2003

